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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,244	10/21/2005	Kaoru Higuchi	63,131 (70904)	6116

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EDWARDS ANGELL PALMER & DODGE LLP
P.O. BOX 55874
BOSTON, MA 02205

EXAMINER	
TRAN, HUAN HUU	

ART UNIT	PAPER NUMBER
2861	

MAIL DATE	DELIVERY MODE
08/15/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/529,244	HIGUCHI ET AL.	
	Examiner	Art Unit	
	Huan H. Tran	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,4-6 and 8-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11-30 and 33-36* is/are allowed.

6)☒ Claim(s) *2, 4, 5, 6, 8, 9, 10, 31, 32, 37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 9, 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9 and 10 are indefinite for being dependent on canceled base claim 7.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 2, 6, 8, 31, 32, 37 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Murata (US 2005/0116069).

As to claim 2, Murata discloses an ultrafine electrostatic attraction fluid let device which ejects a fluid, which is electrified by a voltage application, by an electrostatic attraction in the form of a droplet from a fluid-ejecting hole of a nozzle made of an insulating material (see paragraph [0075], wherein a diameter of the fluid-ejecting hole of the nozzle is equal to or less than Φ8 pm, comprising:

an applied voltage control means which controls a voltage applied to the fluid so as to adjust the amount of the droplet ejected from the fluid-ejecting hole (see paragraph [0192]),

the applied voltage control means controlling the voltage applied to the fluid so that the amount of the droplet, which has just been ejected from the fluid-ejecting hole, of the fluid is equal to or less than 1 pl.

As to claims 6 and 8, Murata discloses an electrostatic attraction fluid jet device which ejects a fluid, which is electrified by a voltage application, by an electrostatic attraction in the form of a droplet from a fluid-ejecting hole of a nozzle made of an insulating material, wherein a diameter of the fluid-ejecting hole of the nozzle is equal to or less than a diameter of the droplet, which has just been ejected, of the fluid. See [0118].

Murata further discloses an applied voltage control means which controls a voltage applied to the fluid so as to adjust the amount of the droplet ejected from the fluid-ejecting hole (see paragraph [0192]), and

the applied voltage control means controlling the voltage applied to the fluid so that the amount of the droplet, which has just been ejected from the fluid-ejecting hole, of the fluid is equal to or less than 1 pl.

As to claim 8, Murata discloses that the diameter of the fluid-ejecting hole of the nozzle is not less than Φ 0.2 pm and not more than Φ 4 pm.

As to claim 31 Murata discloses an electrostatic attraction fluid jet device which ejects a fluid, which is electrified by a voltage application, by an electrostatic attraction

in the form of a droplet from a fluid-ejecting hole of a nozzle made of an insulating material,

in the electrostatic attraction fluid jet device, a diameter of the fluid-ejecting hole of the nozzle being equal to or less than a diameter of the droplet, which has just been ejected, of the fluid, the electrostatic attraction fluid jet device comprising:

an electrode (Fig. 9, electrode 2) for applying a voltage to the fluid; and a process control section for controlling a voltage applied to the electrode so as to adjust the amount of a droplet ejected from the fluid-ejecting hole,

the process control section controlling a voltage (Fig. 9, elements 10 and 11) applied to the electrode so that the amount of a droplet, which has just been ejected from the fluid-ejecting hole, of the fluid is less than 1 pl.

As to claim 32 Murata discloses an electrostatic attraction fluid jet device which ejects a fluid, which is electrified by a voltage application, by an electrostatic attraction in the form of a droplet from a fluid-ejecting hole of a nozzle made of an insulating material,

in the electrostatic attraction fluid jet device, a diameter of the fluid-ejecting hole of the nozzle being equal to or less than (I)8 pm, the electrostatic attraction fluid jet device comprising:

an electrode (Fig. 9, electrode 2) for applying a voltage to the fluid; and

a process control section (Fig. 9, elements 10 and 11) for controlling a voltage applied to the electrode so as to adjust the amount of a droplet ejected from the fluid-ejecting

hole,

the process control section controlling a voltage applied to the electrode so that the amount of a droplet, which has just been ejected from the fluid-ejecting hole, of the fluid is less than 1 pl.

As to claim 37 Murata discloses an electrostatic attraction ink jet device which ejects ink, which is electrified by a voltage application, by an electrostatic attraction in the form of a droplet from an ink-ejecting hole of a nozzle made of an insulating material, wherein

a diameter of the ink-ejecting hole of the nozzle is equal to or less than a diameter of the droplet of the ink which has just been ejected.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murata.

As to claims 4 and 5, Murata discloses the claimed invention except for the relationship between the range of the dot diameter and that of the nozzle diameter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the above-identified relationship, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the

optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Allowable Subject Matter

7. Claims 11-30, 33-36 are allowed.

Response to Arguments

8. Applicant's arguments filed on 07/07/2008 have been fully considered but they are not persuasive. As to claims 2, 31, 32 and amended claims 6 and 37 it is argued that Murata merely states in paragraph [0006] that a minute amount of liquid, smaller than 1 pl, cannot be easily ejected. This argument is not persuasive because that description is related to a conventional art in which the nozzle diameter is outside the range being claimed (see paragraph [0007]) and thus cannot ejects an ultrafine amount of liquid equal to or smaller than 1pl. Murata is able to decrease the size of the nozzle diameter to the range being recited in the present claims. As the result it is seen that the amount of liquid ejected can be equal to or smaller than 1pl.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huan H. Tran whose telephone number is (571) 272-2261. The examiner can normally be reached on at work on T-F from 6:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Huan H. Tran/
Primary Examiner, Art Unit 2861

/H. H. T./
Primary Examiner, Art Unit 2861